REMARKS

New claims 17, 18, 19, 20 and 21 have been added to round out the scope of protection being sought. Support for these claims is respectively found in Example 1 at page 5, Example 2 at page 5, Example 4 at page 6 and, finally, Example 3 at pages 5-6 of the original specification.

The Office Action includes an objection to claim 15 noting an informality in the redundant language of "with including" in line 2 thereof. Claims 9 and 15 have been amended accordingly and Applicants acknowledge with appreciation the Examiner's diligence in noting this informality.

The Office Action includes a rejection of claims 9, 10, 15 and 16 under 35 U.S.C. §112, second paragraph, as allegedly being indefinite. More specifically, the Examiner suggests that these claims are indefinite because the difference between a "double-layer structure" and a "pseudo double-layer structure" is not clear. It is noted that the word "pseudo" is not necessary and may be interpreted as drawing unnecessary limitations into the claims. Accordingly, it has been deleted.

The Office Action includes the rejection of claims 1, 2, 4, 6, 7, 9, 12, 13 and 15 under 35 U.S.C. §102(e) as allegedly being anticipated, or in the alternative, under 35 U.S.C. §103 as obvious over the *Ikeda et al.* patent (U.S. Patent No. 6,468,670). This rejection is respectfully traversed.

The *Ikeda* patent, does not show the structure of independent claim 1 (or for that matter new independent claim 17) for at least the following reasons. In the *Ikeda* patent a composite perpendicular magnetic recording disc has two distinct magnetic layers formed

on a disc substrate. The first layer is a CoCr granular layer formed on a growth enhancing sublayer such as titanium and the second layer is a multilayer of Co/Pt or Co/Pd formed on the top of the granular layer, as illustrated in the Figure on the cover of the patent.

The Office makes the assumption that the Ti layer acts to suppress the continuous crystalline growth from the underlayer to the magnetic recording layer. However, this does not appear to be the case. What is recited in claim 1 is a perpendicular orientation promoting underlayer between the substrate and the perpendicular magnetic recording layer, for inducing a perpendicular orientation of the perpendicular magnetic recording layer. As disclosed at column 3 of the *Ikeda et al.* patent, the "nickel-aluminum alloy (NiAl) layer is deposited on the substrate and a titanium (Ti) film is deposited on the NiAl layer. The Ti film is a sublayer for the CoCr granular host layer that encourages the perpendicular crystalline anisotropy of the CoCr granular layer." It is respectfully submitted that the Office's assumption is that a Ti layer would act to suppress continuous crystal growth does not appear to be the case from the above discussion found in column 3. It is pointed out that the perpendicular orientation promoting layer 22 of the present invention can be made of Ti. The crystal growth discontinuation layer can also be made of Ti. The difference is the manner of their deposit and magnetic characteristics. The mere fact that they are made of the same material is not relevant. Hence, Applicants respectfully submit that for reasons of record the *Ikeda et al.* patent does not teach or suggest the present invention. There is no anticipation because each of the layers in the Ideda et al. patent do not have a one-to-one correspondence to the recitations of independent claims.

Further, the present invention is not obvious insofar as there is no appreciation in the prior art for actually interposing a crystal growth discontinuation layer.

It is noted that the rejection based on the *Ikeda et al.* patent mentions the *Lambeth et al.* patent apparently for the proposition that the Ti layer acts to suppress continuous crystal growth. This issue will be discussed below.

The Office Action also includes a rejection of claims 1-8, 10-14 and 16 under 35 U.S.C. §102(e) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. §103 as obvious over the *Lambeth et al.* patent (U.S. Patent No. 6,248,416). This rejection is respectfully traversed.

The *Lambeth et al.* patent is directed to a magnetic or magneto-optic recording medium incorporating thin films promoting highly oriented cobalt or cobalt alloy magnetic layers for use in the magnetic recording media and transducers.

The *Lambeth et al.* patent discusses recording performance being related to grain size and grain separation in the magnetic layer, at column 3, lines 56-64, and perpendicular recording at column 6, lines 26-47. Additionally, the *Lambeth et al.* patent discusses the use of a soft magnetic "keeper layer" at column 6, lines 55-65. It does not, however, disclose the use of a crystal growth discontinuation layer, as recited in the pending claims.

In more detail, at column 10, lines 59 *et seq.*, a magnetic recording medium is described as having a substrate 12, an underlayer 14, and a magnetic layer 16. The structure may include a plurality of underlayers and/or magnetic layers. Of relevance to the present discussion is the intermediate layer 22, which shares the same relative position as Applicants' crystal growth discontinuation layer, as illustrated in Figure 2b. At column

11, lines 1-9, this intermediate layer is largely undescribed other than its location and that it is part of the underlayer structure. It is noted, however, that the underlayers 14 and 20 "are generally comprised of a material suitable for producing epitaxial growth of the magnetic layer 16," as disclosed at column 11, lines 47-50. At column 13, lines 23-41, various suitable underlayer materials are disclosed which include Ti alloys. Hence, it is believed that the intermediate layer 22 is designed to promote epitaxial growth, and therefore does not constitute a crystal growth discontinuation layer, as this term is used in the present application.

This position is further supported by the specific disclosure regarding perpendicular recording beginning at column 20 line 56 *et seq.* and its emphasis on the crystal orientation.

Hence, as with the *Ikeda et al.* patent, it is respectfully submitted that the mere fact that a common material such as titanium is used in a layer adjacent to a magnetic recording layer does not mean this layer operates inherently as a crystal growth discontinuation layer. In fact, this appears to be inaccurate as it applies to the *Lambeth et al.* patent and its emphasis on epitaxial growth. Should the Examiner have a different view in light of the above, she is respectfully requested to provide further explanations as to her position.

CONCLUSION

In light of the foregoing, Applicants respectfully submit that the present invention is neither anticipated nor rendered obvious by the applied art and, accordingly, reconsideration and allowance of the present invention are respectfully requested. Should any residual issues exist, the Examiner is invited to contact the undersigned at the number listed below.

Respectfully submitted,

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Marked-up Claims 9, 10, 15 and 16

9. (Twice Amended) The perpendicular magnetic recording medium of claim 1, wherein the perpendicular magnetic recording medium has a double-layer structure [with] including a soft magnetic layer between the substrate and the perpendicular orientation promoting underlayer.

10. (Twice Amended) The perpendicular magnetic recording medium of claim 1, wherein the perpendicular magnetic recording medium has a [pseudo] double-layer structure with a soft magnetic layer between the perpendicular orientation promoting underlayer and the perpendicular magnetic recording layer.

15. (Amended) The perpendicular magnetic recording medium of claim 2, wherein the perpendicular magnetic recording medium has a double-layer structure [with] including a soft magnetic layer between the substrate and the perpendicular orientation promoting underlayer.

16. (Amended) The perpendicular magnetic recording medium of claim 2, wherein the perpendicular magnetic recording medium has a [pseudo] double-layer structure with a soft magnetic layer between the perpendicular orientation promoting underlayer and the perpendicular magnetic recording layer.